

CLAIMS:

What is claimed is:

- 1 1. A method in for transmitting data among robotic
2 mechanisms and a controller computer system in an
3 automated data storage library, said method comprising
4 the steps of:
5 providing a robotic library communication protocol
6 for communicating among said robotic mechanisms and said
7 controller computer system, said robotic library
8 communication protocol defining a plurality of fields for
9 each packet including a preamble field that describes a
10 predetermined preamble value that is equal to a
11 particular value;
12 transmitting data among said robotic mechanisms and
13 said controller computer system utilizing said robotic
14 library communication protocol; and
15 each packet that conforms to said protocol including
16 only said preamble value in said preamble field.
- 1 2. The method according to claim 1, further comprising
2 the steps of:
3 providing power to said robotic mechanisms utilizing
4 a power signal; and
5 transmitting said data using said power signal.
- 1 3. The method according to claim 1, further comprising
2 the steps of:
3 providing power to said robotic mechanisms utilizing
4 a power signal;

5 transmitting said data using said power signal by
6 modulating said data on top of said power signal to
7 generate a modulated signal;
8 transmitting said modulated signal to said robotic
9 mechanisms; and
10 said robotic mechanisms being powered by a power
11 signal that is extracted from said modulated signal.

1 4. The method according to claim 3, further comprising
2 the steps of:

3 receiving said modulated signal at one of said
4 robotic mechanisms;
5 demodulating said modulated signal to produce a
6 received data signal and received power; and
7 powering said one of said robotic mechanisms
8 utilizing said received power.

1 5. The method according to claim 1, further comprising
2 the steps of:
3 said robotic library communication protocol
4 including a destination address field for each packet for
5 storing an address of an intended recipient for each
6 packet, a source address field for each packet for
7 storing an address of a sender of each packet, a type
8 field for each packet for storing an indication of a type
9 of each packet, a data field for storing user data, and
10 an error checking field for each packet for storing an
11 error checking character for each packet.

1 6. The method according to claim 1, further comprising
2 the steps of:

3 receiving a message to be transmitted to a recipient
4 robotic mechanism;

5 encoding said message utilizing said protocol to
6 produce a plurality of packets that conform to said
7 protocol; and
8 including only said preamble value in said preamble
9 field of each one of said plurality of packets.

1 7. The method according to claim 6, further comprising
2 the steps of:

3 providing a power signal that is used to deliver
4 power to said robotic mechanisms;
5 converting said plurality of packets to an
6 asynchronous data signal; and
7 modulating said asynchronous data signal on top of
8 said power signal.

1 8. The method according to claim 7, further comprising
2 the steps of:

3 delivering said power and said message to said
4 recipient robotic mechanism utilizing said modulated
5 signal.

1 9. The method according to claim 7, further comprising
2 the steps of:

3 converting said plurality of packets to a stream of
4 bytes; and
5 converting said stream of bytes to said asynchronous
6 data signal using a start bit and two stop bits for each
7 byte of said stream of bytes to delimit each byte of said
8 stream of bytes from a next byte of said stream of bytes.

1 10. The method according to claim 1, further comprising
2 the steps of:

3 receiving a data signal by one of said robotic
4 mechanisms;
5 determining whether said data signal includes a
6 preamble that stores said predetermined preamble value
7 that is equal to said particular value;
8 in response to determining that said data signal
9 includes a preamble that stores said predetermined
10 preamble value that is equal to said particular value,
11 decoding a remainder of said data signal utilizing said
12 protocol; and
13 in response to determining that said data signal
14 does not include a preamble that stores said
15 predetermined preamble value that is equal to said
16 particular value, discarding said data signal without
17 processing a remainder of said data signal.

1 11. A system for transmitting data among robotic
2 mechanisms and a controller computer system in an
3 automated data storage library, said system comprising:
4 a robotic library communication protocol for
5 communicating among said robotic mechanisms and said
6 controller computer system, said robotic library
7 communication protocol defining a plurality of fields for
8 each packet including a preamble field that describes a
9 predetermined preamble value that is equal to a
10 particular value;
11 data being transmitted among said robotic mechanisms
12 and said controller computer system utilizing said
13 robotic library communication protocol; and
14 each packet that conforms to said protocol including
15 only said preamble value in said preamble field.

1 12. The system according to claim 11, further
2 comprising:

3 a power signal for providing power to said robotic
4 mechanisms; and
5 said power signal for transmitting said data.

1 13. The system according to claim 11, further
2 comprising:

3 a power signal for providing power to said robotic
4 mechanisms;

5 said data being transmitted using said power signal
6 by modulating said data on top of said power signal to
7 generate a modulated signal;

8 said modulated signal being transmitted to said
9 robotic mechanisms; and

10 said robotic mechanisms being powered by a power
11 signal that is extracted from said modulated signal.

1 14. The system according to claim 13, further
2 comprising:

3 said modulated signal being received at one of said
4 robotic mechanisms;

5 said modulated signal being demodulated to produce a
6 received data signal and received power; and

7 said received power for powering said one of said
8 robotic mechanisms.

1 15. The system according to claim 11, further
2 comprising:

3 said robotic library communication protocol
4 including a destination address field for each packet for
5 storing an address of an intended recipient for each
6 packet, a source address field for each packet for

7 storing an address of a sender of each packet, a type
8 field for each packet for storing an indication of a type
9 of each packet, a data field for storing user data, and
10 an error checking field for each packet for storing an
11 error checking character for each packet.

1 16. The system according to claim 11, further
2 comprising:
3 a message to be transmitted to a recipient robotic
4 mechanism;
5 said message being encoded utilizing said protocol
6 to produce a plurality of packets that conform to said
7 protocol; and
8 only said preamble value being included in said
9 preamble field of each one of said plurality of packets.

1 17. The system according to claim 16, further
2 comprising:
3 a power signal that is used to deliver power to said
4 robotic mechanisms;
5 said controller computer system including a CPU
6 executing code for converting said plurality of packets
7 to an asynchronous data signal; and
8 a MODEM for modulating said asynchronous data signal
9 on top of said power signal.

1 18. The system according to claim 17, further
2 comprising:
3 said power and said message being delivered to said
4 recipient robotic mechanism utilizing said modulated
5 signal.

1 19. The system according to claim 17, further
2 comprising:

3 said plurality of packets being converted to a
4 stream of bytes; and

5 said stream of bytes being converted to said
6 asynchronous data signal using a start bit and two stop
7 bits for each byte of said stream of bytes to delimit
8 each byte of said stream of bytes from a next byte of
9 said stream of bytes.

1 20. The system according to claim 11, further
2 comprising:

3 data signal being received by one of said robotic
4 mechanisms;

5 said one of said robotic mechanisms including a
6 computer system executing code for determining whether
7 said data signal includes a preamble that stores said
8 predetermined preamble value that is equal to said
9 particular value;

10 in response to determining that said data signal
11 includes a preamble that stores said predetermined
12 preamble value that is equal to said particular value,
13 said computer system executing code for decoding a
14 remainder of said data signal utilizing said protocol;
15 and

16 in response to determining that said data signal
17 does not include a preamble that stores said
18 predetermined preamble value that is equal to said
19 particular value, said computer system executing code for
20 discarding said data signal without processing a
21 remainder of said data signal.